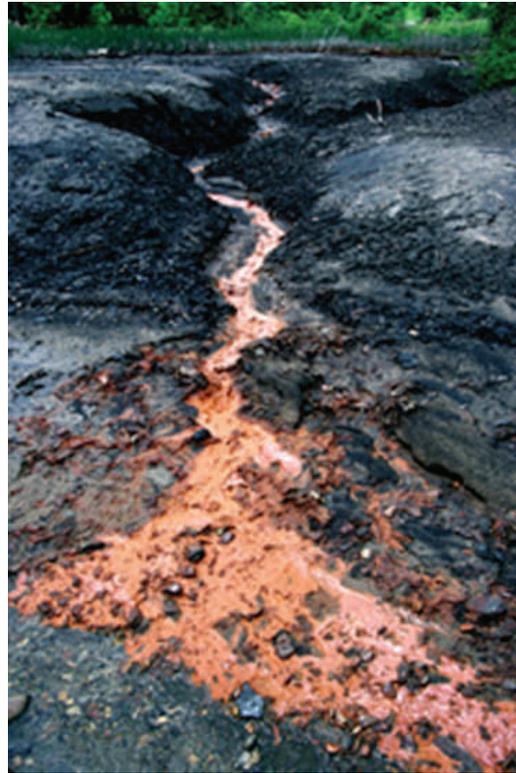




# STATE OF INDIANA

## INDIANA DEPARTMENT OF NATURAL RESOURCES—DIVISION OF RECLAMATION



**ACID MINE DRAINAGE (AMD)** - is the most severe and well-recognized environmental problem related to abandoned coal mine sites and can impact surface waters, including lakes, ponds, creeks, and even entire watersheds. AMD is water typically with a pH less than 4 that drains from mine workings and from mine spoils, and coal refuse (called acid rock drainage). The low pH is a result acid forming from the oxidation of sulfide minerals (e.g., pyrite) in the host rock as it is exposed to air and water during mining. The acidic water solubilizes moderate to high concentrations of metals from the rock and sulfate.

When a watershed has been heavily mined, AMD can constitute the majority of water in the receiving surface waters. These water bodies can have pH values between 2.0 and 5.0 and contain hundreds of milligrams per liter (mg/L) of acidity and dissolved iron. Water bodies impacted this severely are usually devoid of fish and other aquatic organisms. Only a very limited number of animal and plant species can survive under these conditions. Hundreds of projects have been performed in an attempt to evaluate and reclaim some of these watersheds and return them to healthy aquatic habitats. Remediating AMD in a watershed can be extremely difficult. Often there is no at-source AMD abatement technique feasible or cost-effective. In these cases, treatment of the AMD is sometimes the only alternative for improving water quality and aquatic habitats in the receiving water bodies.